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Predictive factors of intrahospital mortality in patients with right ventricular myocardial infarction

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Introduction Right ventricular (RV) infarction is a serious and life threatening condition which mainly complicates an inferior wall myocardial infarction (MI). In the literature, data for predictive factors of mortality in this setting remains scarce.

Aim to study predictive factors of intrahospital mortality in patients with RV infarction.

Methods and results Data was collected from a monocenter registry including all patients with AMI admitted in our department between January 1995 and March 2013. 1483 patients were enrolled in our registry. RV infarction was diagnosed in 160 (10.7%) patients, always complicating an inferior wall MI. 37 (23.1%) patients presented with right sided heart failure while the remaining patients presented with isolated features of RV involvement on the ECG with ST elevation in the right leads. Intrahospital death occurred in 20 patients (12.5%) and was significantly higher in patients with RV heart failure ($p=0.02$). Among all deaths included in our registry, RV infarction was responsible for 14.5%. The reperfusion strategy was Thrombolysis in 48 patients (30%), angioplasty in 62 patients (38.8%), a combined approach in 10 cases (6.3%) and conservative treatment in 40 cases (25%). There was no difference in mortality among all strategies ($p: 0.556$). In patients who had angioplasty, post procedural TIMI flow 0 or 1 was associated with a higher mortality ($p<0.001$). In a multivariate analysis, factors found to predict intrahospital mortality were: renal impairment defined as creatinin levels $>130\mu\text{mol/l}$ (OR: 8.22; 95% CI [1.33-50.9]; $p: 0.023$), triple vessel disease (OR: 7.09; 95% CI [1.738-28.93]; $p: 0.006$) and left ventricular failure with KILLIP >1 ($p: 0.004$).

Conclusion Our data support the fact that several factors may predict intrahospital mortality after RV myocardial infarction among which renal impairment, the extent of coronary artery disease and left ventricular heart failure are the most powerful predictors.

The author hereby declares no conflict of interest

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Prognostic factors and impact of blood pressure level during the first 48 hours after myocardial infarction

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Background High blood pressure and low blood pressure are perfectly identified cardio-vascular risk factors, especially in primary prevention. However, their respective role after myocardial infarction is uncertain, with few data available.

Objectives To compare cardio-vascular deaths and events after myocardial infarction between the different blood pressure levels observed during the first forty-eight hours.

Methods We carried out an observational, prospective, monocentric study, including all consecutive patients admitted in Dijon's Cardiology Intensive Care Unit for myocardial infarction, between February 2012 and February 2014. Systolic blood pressure (SBP) was defined as the average of three measurements performed daily during the first two days of hospitalization. Mortality and cardiovascular events were collected during hospitalization and after a follow-up of 1 year.

Results Among 1153 patients enrolled, 920 were analyzed and divided into three groups: 75 patients with SBP less than or equal to 100mmHg, 731 patients with SBP of 101 to 140mmHg, 114 patients with SBP greater than 110mmHg. Age, BMI, LVEF and STEMI were predictive of a SBP

below 100mmHg. Unadjusted analyses showed no difference between the three groups for in-hospital mortality from all causes (2.7% vs 2.2% vs 2.6%, $p=0.769$) and at 1 year (13.3% vs 9.3% vs 10.5%, $p=0.513$), and cardiovascular mortality at 1 year (6.7% vs 7.4% vs 7.9%, $p=0.951$). When adjusted, SBP less than or equal to 100mmHg did not significantly increase mortality (OR=2.145, 95% CI=0.969-4.747, $p=0.060$).

Conclusion Hypotension within the first forty-eight hours after myocardial infarction is common. Our work established four predictors, but did not find relationship between blood pressure levels and in-hospital and long-term prognosis of patients. Further studies are needed to clarify the optimal blood pressure after acute coronary syndrome.

The author hereby declares no conflict of interest

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CHA₂DS₂-VASc score estimates in-hospital mortality beyond GRACE score after acute myocardial infarction

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Background and aims CHA₂DS₂-VASc score have recently been suggested to predict death in patients with Atrial Fibrillation (AF). In acute myocardial infarction (AMI), silent AF is more common than symptomatic AF and associated with poor prognosis. In patients with AMI, we aimed to assess the distribution of CHA₂DS₂-VASc score in patients with silent or symptomatic AF and the association of the score with mortality.

Methods 849 consecutive AMI were prospectively analyzed by continuous ECG monitoring (CEM) <48 hours after admission. Silent AF was defined as asymptomatic episodes lasting >30 sec. Symptomatic AF was defined as any AF occurring on ECG during the hospital stay, resulting in clinical symptoms or need for urgent cardioversion. The population was studied into three groups: No AF, Silent AF, and symptomatic AF. CHA₂DS₂-VASc and GRACE risk score were calculated for risk assessment.

Results One hundred and thirty five patients (16%) developed silent AF and 45(5%) had symptomatic AF. Compared with the no AF group, patients with silent AF were markedly older 80 (67-85) vs. 62 (53-75) years; $p<0.001$), more frequently women (58 (43%) vs. 198 (30%); $p=0.006$), and less smoker (26 (20%) vs. 242 (36%); with $p<0.001$). Patients with silent and symptomatic AF, had higher CHA₂DS₂-VASc score than patients without AF (5[4-6] and 5[4-6] vs 3[2-4], $p<0.001$).

CHA₂DS₂-VASc score was similar in patients with silent and symptomatic AF ($p=0.550$). Mortality was higher in silent AF and symptomatic AF than in patients without AF (14 (10.4%) and 8 (17.8%) vs 9 (1.3%), $p<0.001$). CHA₂DS₂-VASc score was associated with mortality in patients with AF, but not in patients without AF (OR[95% CI]: 1.32[1.02-1.72], $p=0.036$ and 1.22[0.88-1.71], $p=0.236$, respectively).

In the whole population, optimal threshold for predicting death for GRACE and CHA₂DS₂-VASc risk scores were obtained by Receiver Operating Characteristic (ROC) curve (i.e. 153 and 4, respectively).

High CHA₂DS₂-VASc (≥ 4) and GRACE (≥ 153) scores independently stratified mortality. By multivariate analysis, high CHA₂DS₂-VASc score was an independent explanatory variable for death after AMI (OR[95% CI]: 3.89[1.08-13.93]; $p=0.037$), beyond GRACE risk score (OR[95% CI]: 9.77[2.74-34.80]; $p<0.001$).

Conclusion Patients with silent AF have level of CHA₂DS₂-VASc risk similar to patients with symptomatic AF. A high CHA₂DS₂-VASc score is associated with mortality, even when adjusted for GRACE risk score. These data suggest that CHA₂DS₂-VASc score could improve risk stratification after AMI.

The author hereby declares no conflict of interest